



Product Approval specification

PCB CABLE ANTENNA TP-W5G-262

Head Office R&D Center :

1010-ho Shinil IT UTO 13 LS-ro , Gunpo-si, Gyeonggi-do, 435-831, Korea

Antenna Approval sheet

ITEM NAME	5G WIFI Antenna
MODEL/ BAND	5G BAND
CODE NAME	TP-W5G-262 52mm TP-W5G-262 74mm
CUSTOMER CODE	
CUSTOMER	DOFLAB
PROVIDER	TELLESTAR

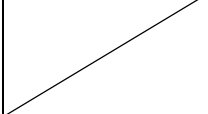
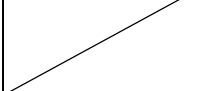
TELLESTAR	Classification	DIRECTOR	EXAMINATION	APPROVAL
	RF			
APPROVAL	MECHANICAL			
CUSTOMER	Classification	DIRECTOR	EXAMINATION	APPROVAL
	RF			
APPROVAL	MECHANICAL			



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[illegible]

2.Revision List`

No	Date	Before change	After change	Reason	Rev
1	2021.07.01			DATA	1.0
2					
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3.Specification

3-1 General Standard

General Specification	
Model name	TP-W5G-262
Antenna type	5G PCB Cable Antenna

3-2Electrical Standard

Electrical Specification	
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(Frequency Range)		5150~5875MHz 52mm	5150~5875MHz 74mm
(V.S.W.R)		2.5:1	2.5:1
(Gain)	Peak Max	1.94dBi	1.81dBi
Impedance		50Ω	
Polarization		Linear	
Radiation pattern		Omni-Directional	

3-2 Mechanical Standard

Mechanical Specification	
Connector type	IPEX MHF1 52mm , 74mm
Material	FR-4 CU
TAPE	3M #9040 0.15mm
Color	BLACK
Weight	52mm 0.8g ± 0.1g 74mm 0.89g ± 0.1g
Temperature range	-40℃ ~ 80℃

3-3 Conditions

Specification	
Operating Environment	Temperature: : -40~80℃ Humidity : ~85% RH
Storage Environment	Temperature : -20~60℃ Humidity : ~65% RH

4 Test Procedure & Measurement

4-1 External Test

To check the unity Antenna’s exterior, size, connector and etc. with the exterior indicated

4-2Electrical Feature Inspection

4-2-1 Materials

Equipment	Model	Quantity	Standard
Network Analyzer	8754ES equipment with the equivalent	1EA	·Freq. Range : 9KHz ~ 6GHz · Accuracy : <5ppm ·Dynamic Range : 105dB · Trace at ±200dB · Resolution : 1Hz · Impedance : 50Ω
Adaptor		1EA	· N(F)-SMA(M)
Calibration Kit	HP85033D	1Set	· DC ~ 6GHz (SMA-Type)

Inspection

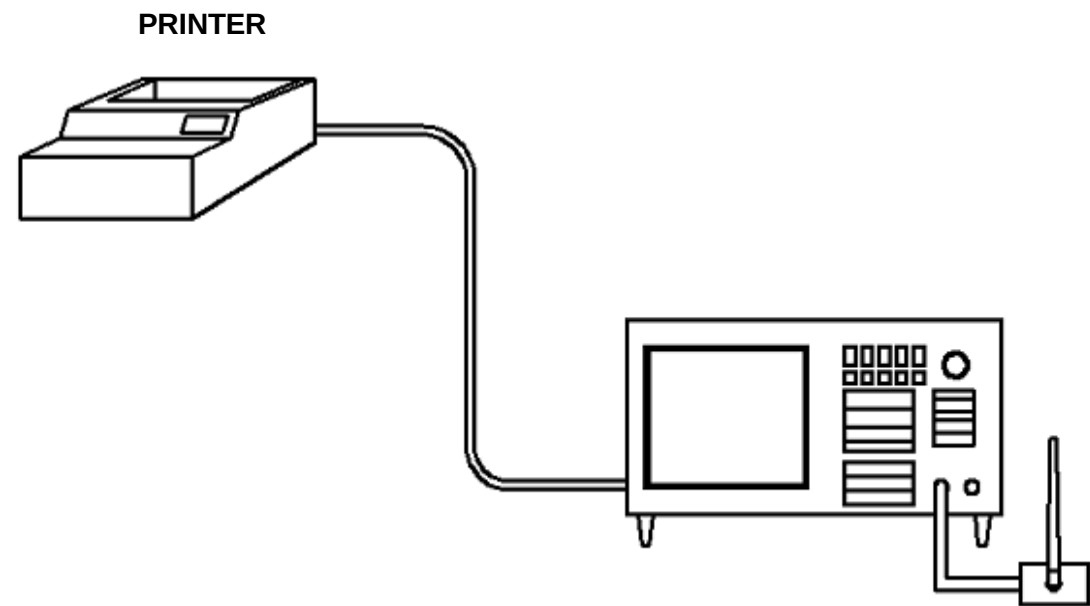


Figure 1. (Network Analyzer)Electrical Characteristic Measurement

4-2-2 Inspection

가. Equipment Setting and Calibration

㉠ Equipment Setting

- ㉡ Bandwidth: 5150~5875MHz
- ㉢ Source Power: 0dBm,

㉣ Calibration

Using N-Type Cal Kit Applying O.S.L. Method, Calibrate Port number 1.

- ㉤ S₁₁ Calibration: Open Port #1, Calibrate after connecting the Load short.

㉥ Calibration Check

- ㉦ Connect Load to Port #1 to check S₁₁'s V.S.W.R is less than 1.02:1
- ㉧ Connect Load to Port #1 to check S₂₁ is less than -80.0dB.

If not Satisfied with the Result, Repeat Procedure ㉣ Calibration.

나. Inspection Method and Contents

Item	Inspection Method	Standard
V.S.W.R	Connect ANT to the Positioner and Measure the S ₁₁ within Operating Band, as Shown above on Figure 1.	2.0:1 Max.
Impedance	Connect ANT to the Positioner and Measure the S ₁₁ VALUE that's on Smith Chart within the Operating Band, as shown above on Figure w.	50Ω

4-3 .Radiation Pattern

4-3-1 Chamber Materials (KTM Korea)

Name of the Equipment	Model	Quantity	Standard
Far Field Chamber	KTM	1EA	· Freq. Range: 400MHz~18GHz · Measurement Speed : Radiation Pattern Cuts: Real Time Full sphere far-field : <600 sec · Measurement Accuracy : Dynamic Range: 70 dB Cross-polar isolation < -45 dB · Gain Accuracy : KTM 1 - 6GHz < $\pm 0.75\text{dB}$
Adaptor		1EA	· SMA(M)-SMA(F)
Computer		1EA	· Data for Measurement

4-3-2 Inspection

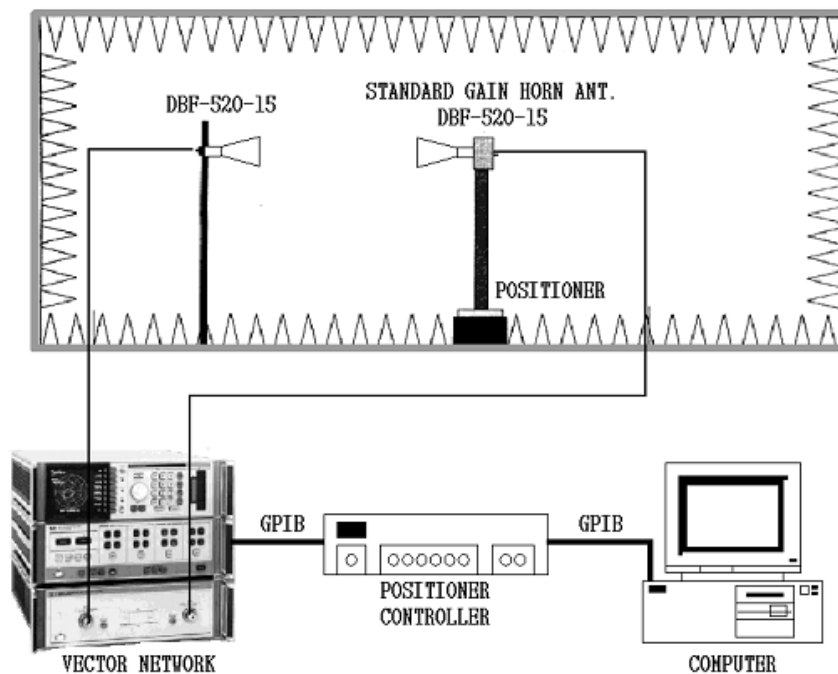
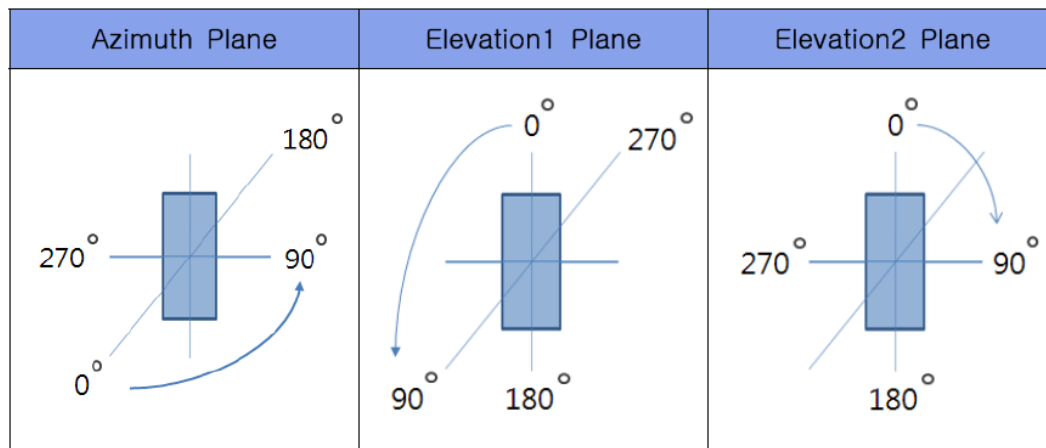


Figure2. Radiation Patten Test Construction



A. Equipment Setting and Measurement

① Network Analyzer Setting

① Calibrate Chamber System for Gain Measurement using KTM. At the Same Time set up Software Program fir Chamber System Control.

– Test Frequency Setting : 5.15~5.87GHz Band

② Change Over from a TX to the RX on Target Positioner.

③ Start a Software Program for Chamber System Control & Measuring.

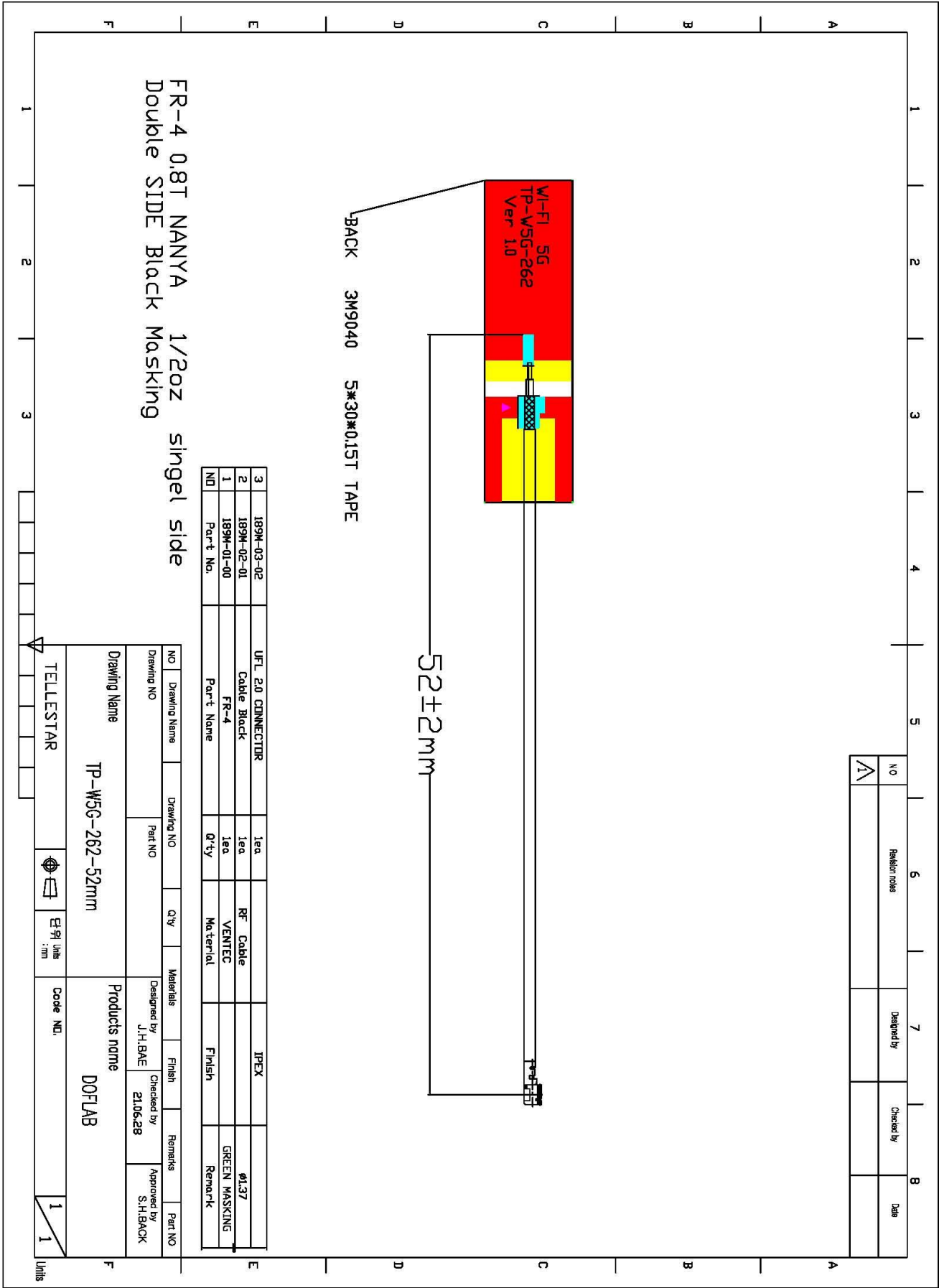
④ Measurement Data.

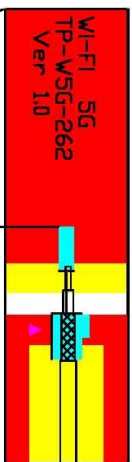
B. Inspection Method and Contents

Item	Inspection Method	Standard
Radiation Pattern	Connect ANT' to the Positioner and measure the Radiation Pattern within the Far Field Chamber, as shown above, on Figure 2.	Normal: dBi

5. Antenna drawing

52mm ANT



$-74 \pm 2 \text{ mm}$ 

BACK 3M9040 5*30*0.15T TAPE

3	189M-03-02	UFL 2.0 CONNECTOR	1ea		JPEX	
2	189M-02-01	Cable Black	1ea	RF Cable		Ø1.37
1	189M-01-00	FR-4	1ea	VENEC		GREEN MASKING
ND	Part No.	Part Name	Qty	Material		Finish Remark

FR-4 0.8T NANYA 1/2oz singel side
Double SIDE Black Masking

NO	Drawing Name	Drawing NO	Qty	Materials	Finish	Remarks	Part NO
Drawing NO		Part NO		Designed by J.H.BAE	Checked by 21.06.28	Approved by S.H.BAOK	
Drawing Name				Products name			
TP-W5G-262-74mm				DOFLAB			
TELLESTAR				Code NO.		1 / 1	
Z		mm					

Units

6. Reliability

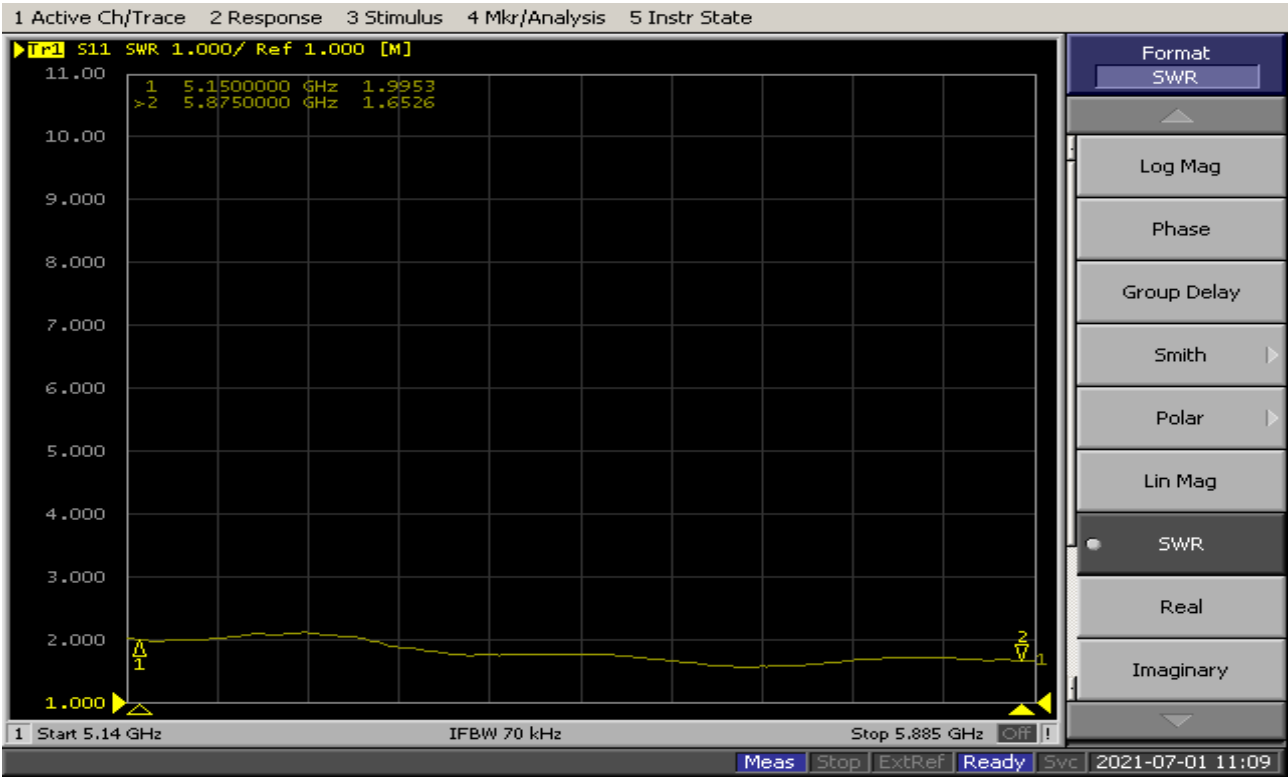
NO	Items	Specifications	
6-1	LOW TEMP EXPOSURE TEST	TEMPERATURE : -40°C TIME : 48 HOURS	AFTER 2HOURS EXPOSURE IN ORDINARY FROM TEST , ANTENNAS SHALL BE APPROVED AS SPECIFIED IN ITEM 5 AND 6
6-2	HIGHTEMP EXPOSURE TEST	TEMPERATURE : 70°C TIME : 48 HOURS	
6-3	HUMIDITY EXPOSURE TEST	TEMPERATURE : 60°C±2°C HUMIDITY : 85%RH TIME : 88 HOURS	
6-4	THERMAL SHOCK	Temperature(°C) 0 45 Min. Test cycle : 3cycles	
6-5	DROP TEST	SET THE MOTOR ON THE HEAVY BLOCK ABOUT 100g WEIGHT (INCLUDE THE NOTOR) AND DROP THE MOTOR ON THE CONCRETE FLOOR. HEIGHT : 1.5m DIRCCTION : ±X , ±Y , ±Z TIMES : THREE DROPS PER PLANE FOR A TOTAL OF 5 DROPS.	

7. Electrical data

7.1 TEST Standard

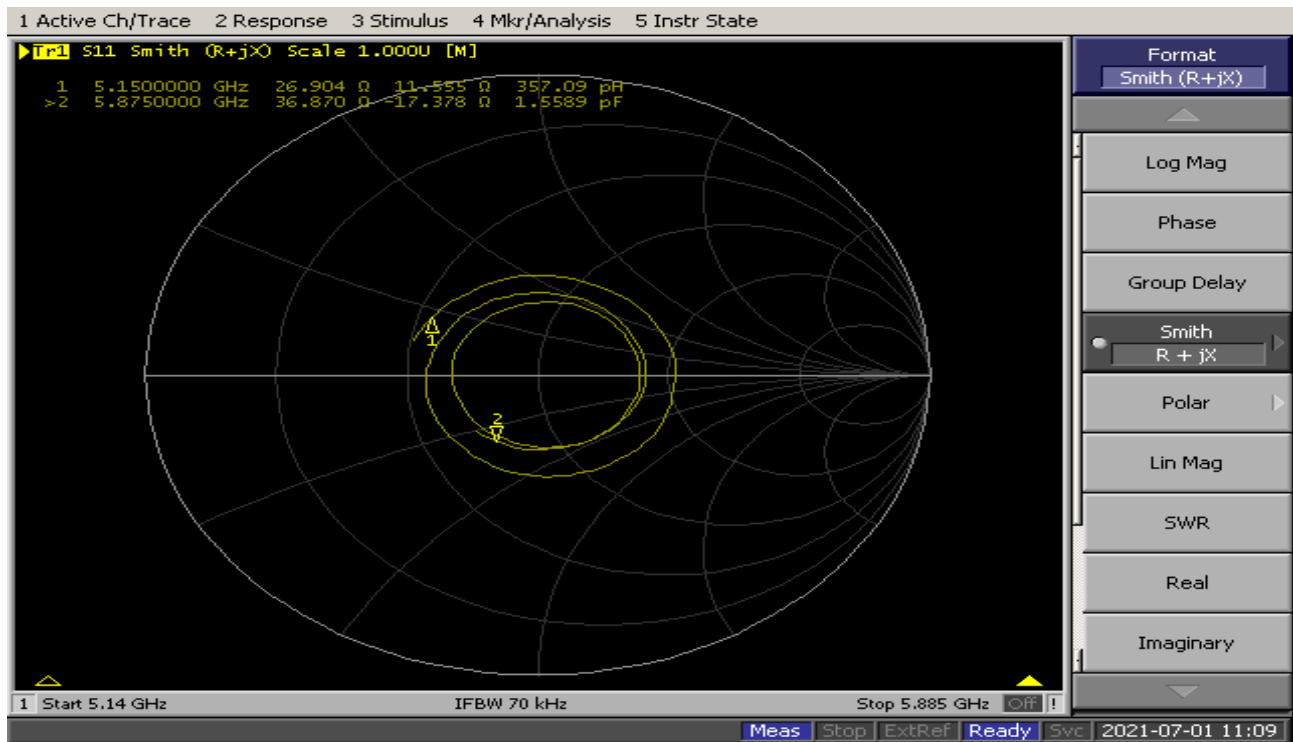
(Frequency Range)	5150~5875MHz 52mm	5150~5875MHz 74mm
(V.S.W.R) MAX	1.99:1	2.02:1
	Gain Max Point	
PEAK MAX	1.94dBi	1.81dBi

7.1.1 (V.S.W.R.) 52mm



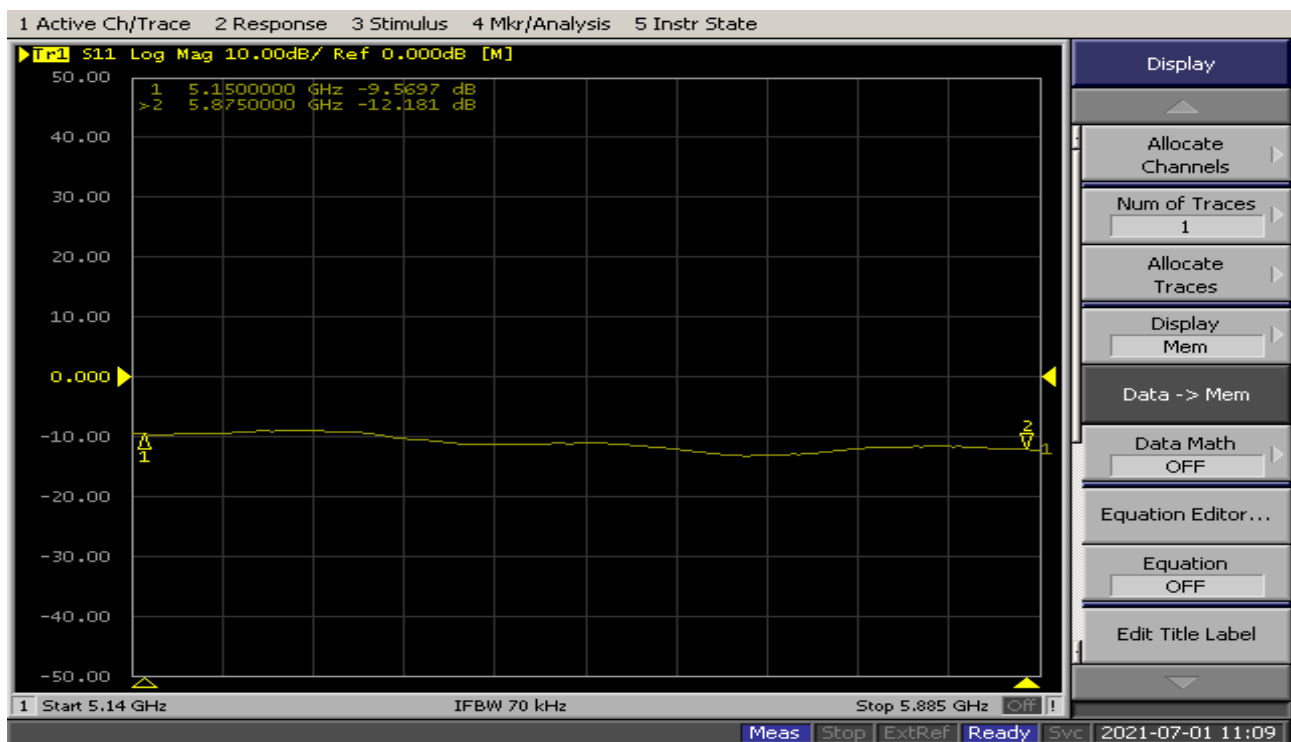
V.S.W.R

7.1.2 Smith Chart



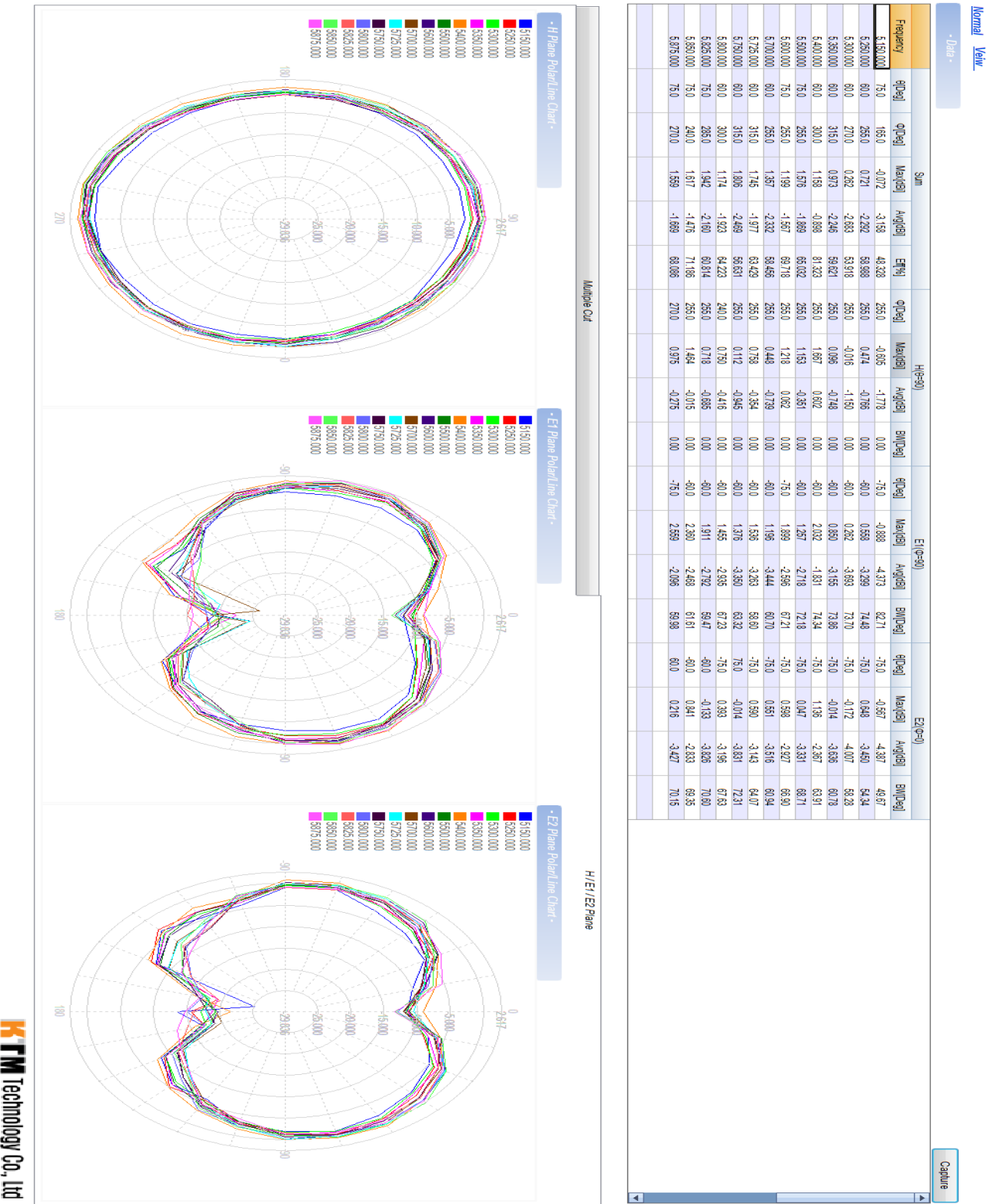
Smith Chart

7.1.3 RETRUN LOSS



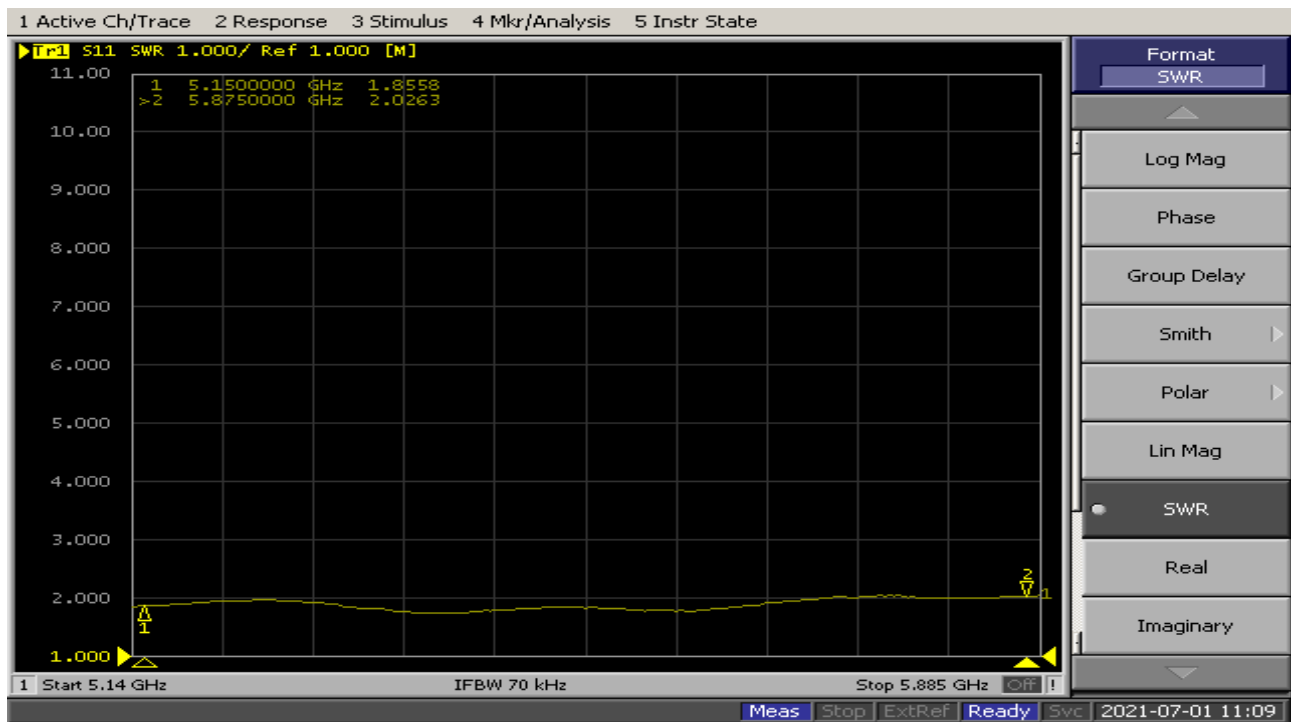
Return Loss

7.1-4 GAIN DATA 52mm



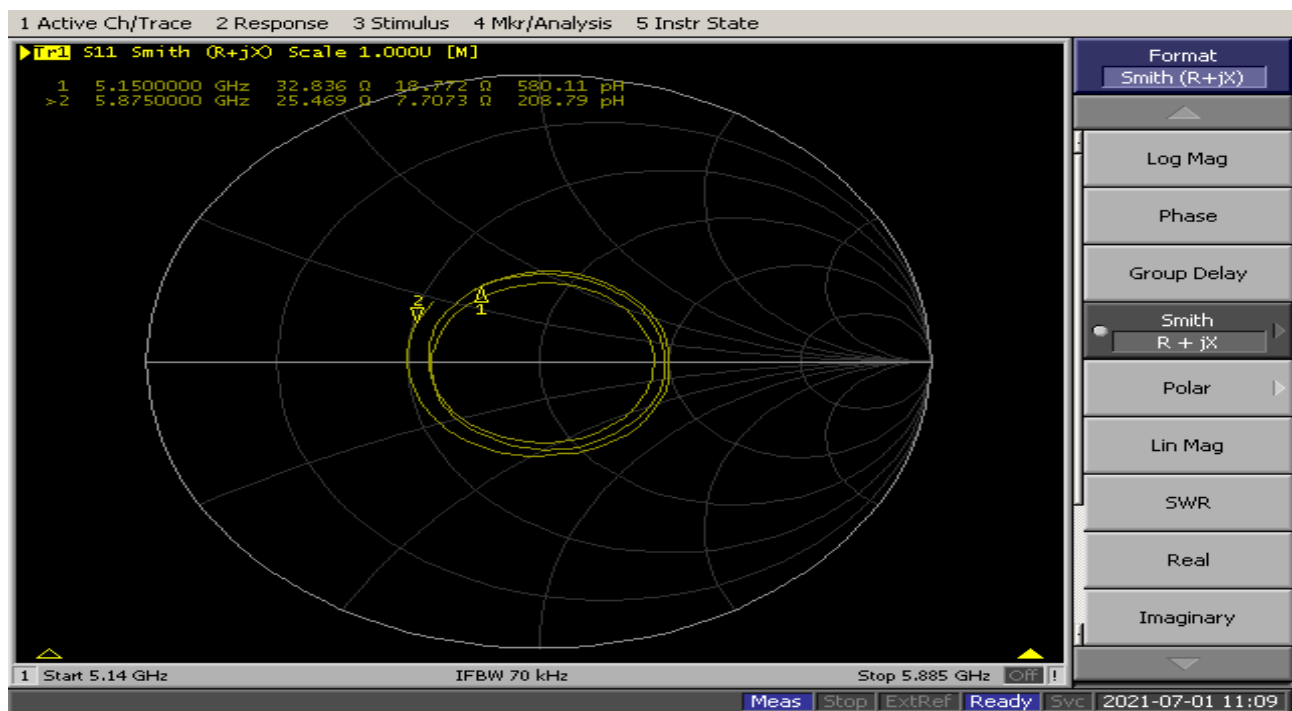
<3D Multiple Frequency Data >

7.2.1 (V.S.W.R.) 74mm



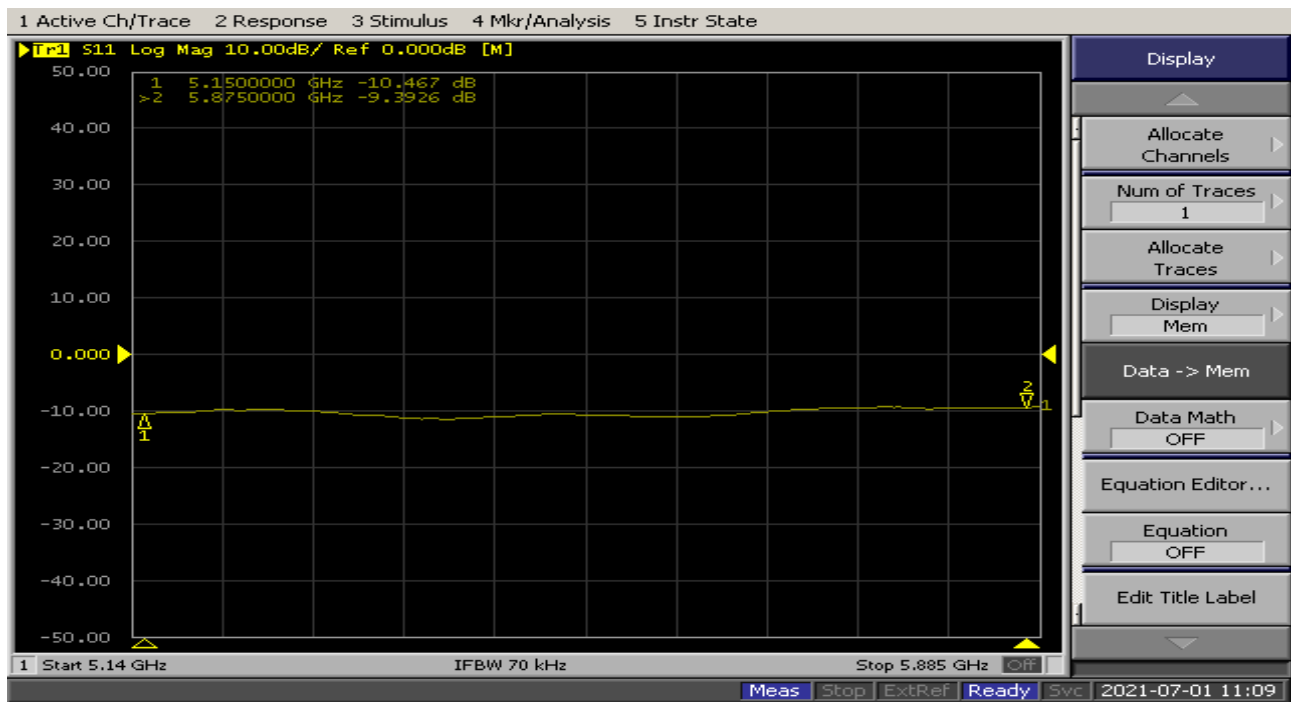
V.S.W.R

7.2.2 Smith Chart



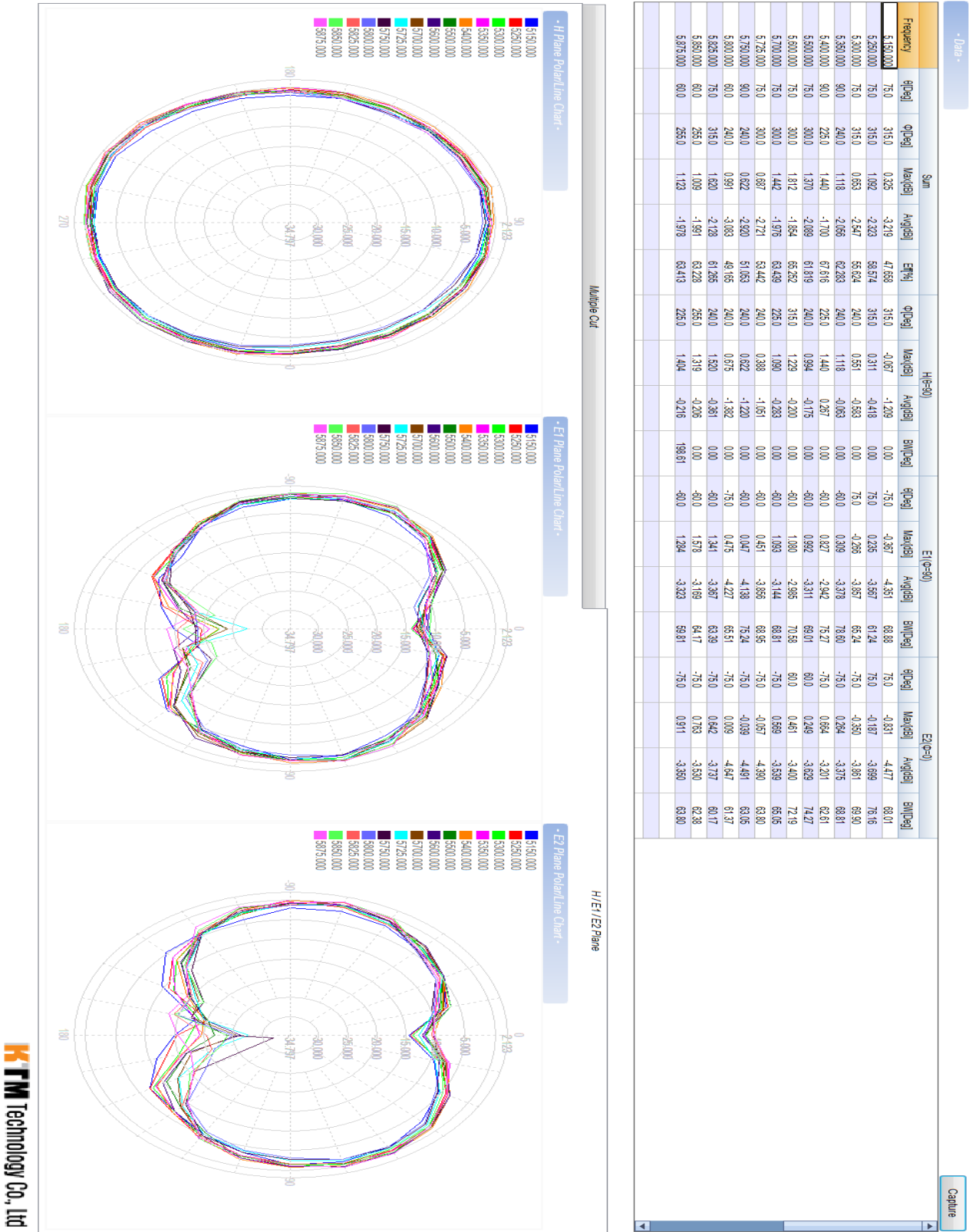
Smith Chart

7.2.3 RETRUN LOSS



Return Loss

7.2-4 GAIN DATA 74mm



<3D Multiple Frequency Data >

8 ANTENNA UNIT TEST

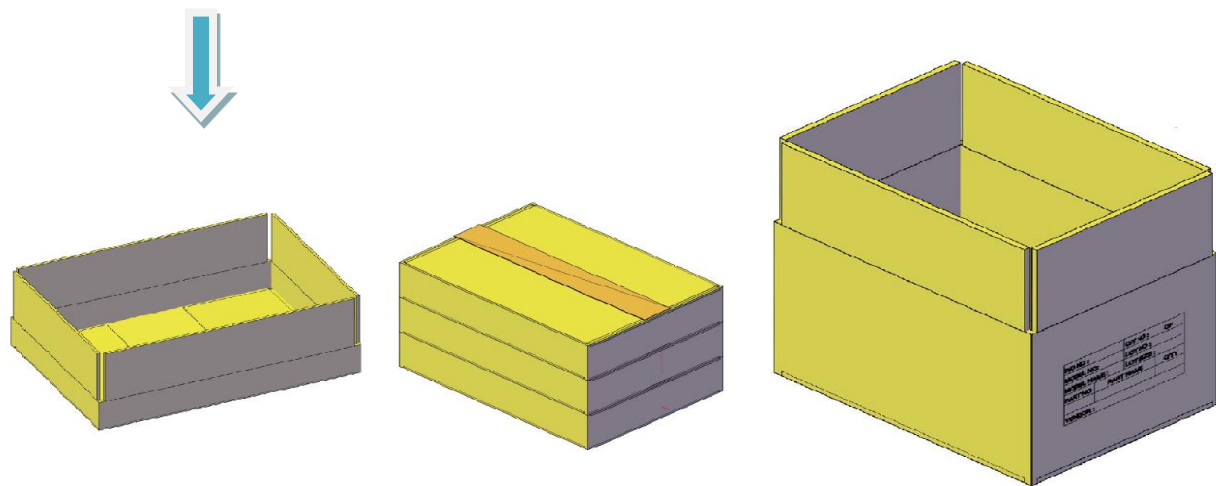
TEST	OPEN / SHORT TEST
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BAND	5G 54mm		5G 74mm	
1	OK		OK	
2	OK		OK	
3	OK		OK	
4	OK		OK	
5	OK		OK	
6	OK		OK	
7	OK		OK	
8	OK		OK	
9	OK		OK	
10	OK		OK	

9. Packing

VINYL Packing

100EA



C-corrugated

BC- corrugated

	PART NAME	Q.TY
1	VINYL	100EA
2	INNER BOX 330*250*80mm	2000EA
3	OUTBOX 365*260*250mm	6000EA

- May vary by manufacturer